

## ABSTRACT

Voltage applying means applies a pulse voltage between a nozzle and a substrate, the nozzle having a diameter ranging from 0.01  $\mu\text{m}$  to 25  $\mu\text{m}$ , an upper limit voltage (10) of the pulse voltage being equal to or greater than a discharge-inducing minimum voltage (30), that is a voltage required to start discharge of fluid. A lower limit first voltage (20a) is provided immediately before a rise of the pulse voltage, the lower limit first voltage (20a) having a same polarity as that of the upper limit voltage (10), an absolute value of the lower limit first voltage (20a) being set smaller than the discharge-inducing minimum voltage (30). A lower limit second voltage (20b) is provided immediately after a rise of the pulse voltage, the lower limit second voltage (20b) having an opposite polarity as that of the upper limit voltage (10), an absolute value of the lower limit second voltage (20b) being set smaller than the discharge-inducing minimum voltage (30). With this structure, the present invention provides an electrostatic suction type fluid discharge device and an electrostatic suction type fluid discharge method, which simultaneously achieve miniaturization of nozzle, discharge of micro fluid droplet, high accuracy for discharge position, and decrease in drive voltage. The device and method offer superior discharge start/stop

characteristic, thus realizing operation at high frequencies. The device is also capable of discharge amount control by pulse time.